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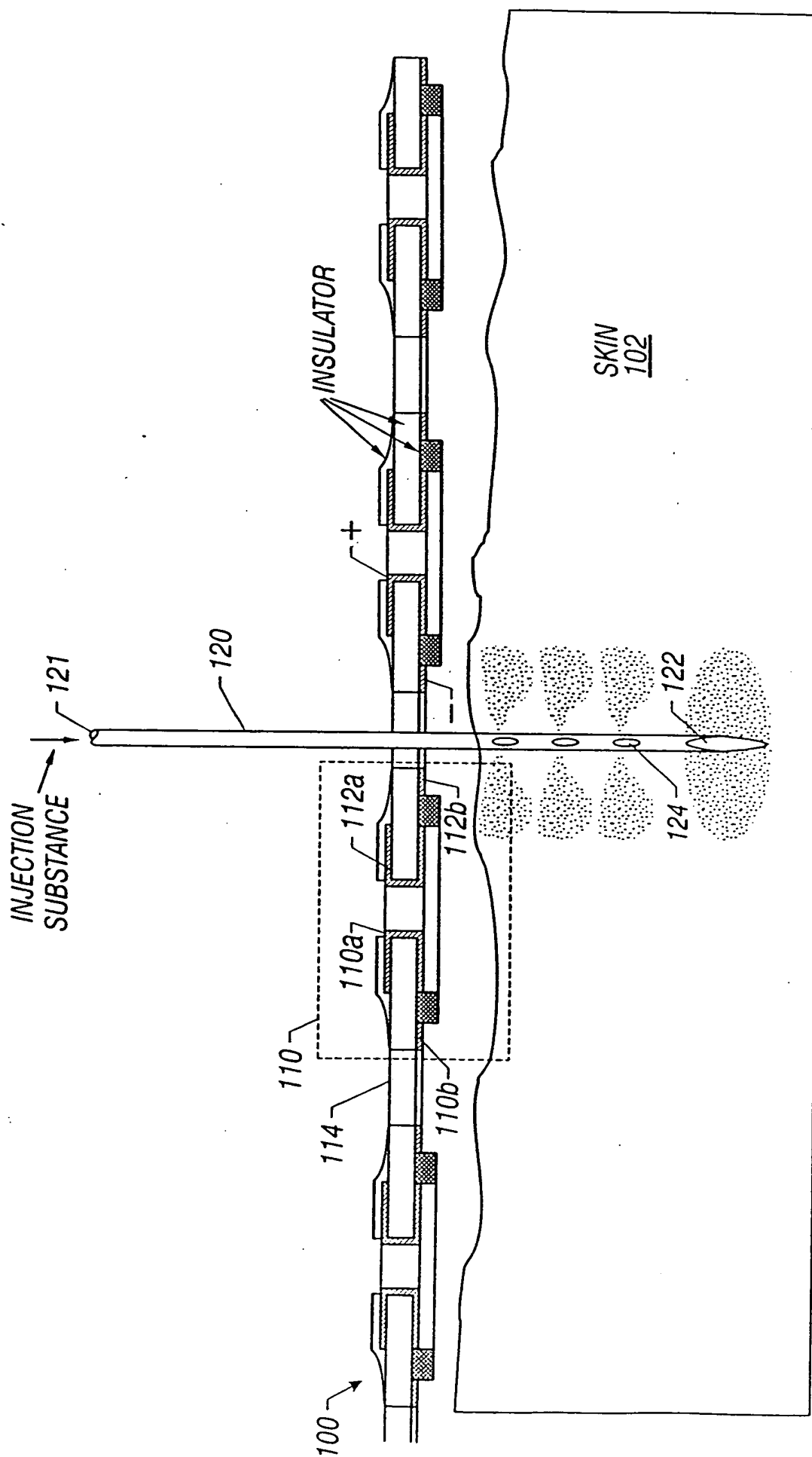


FIG. 1

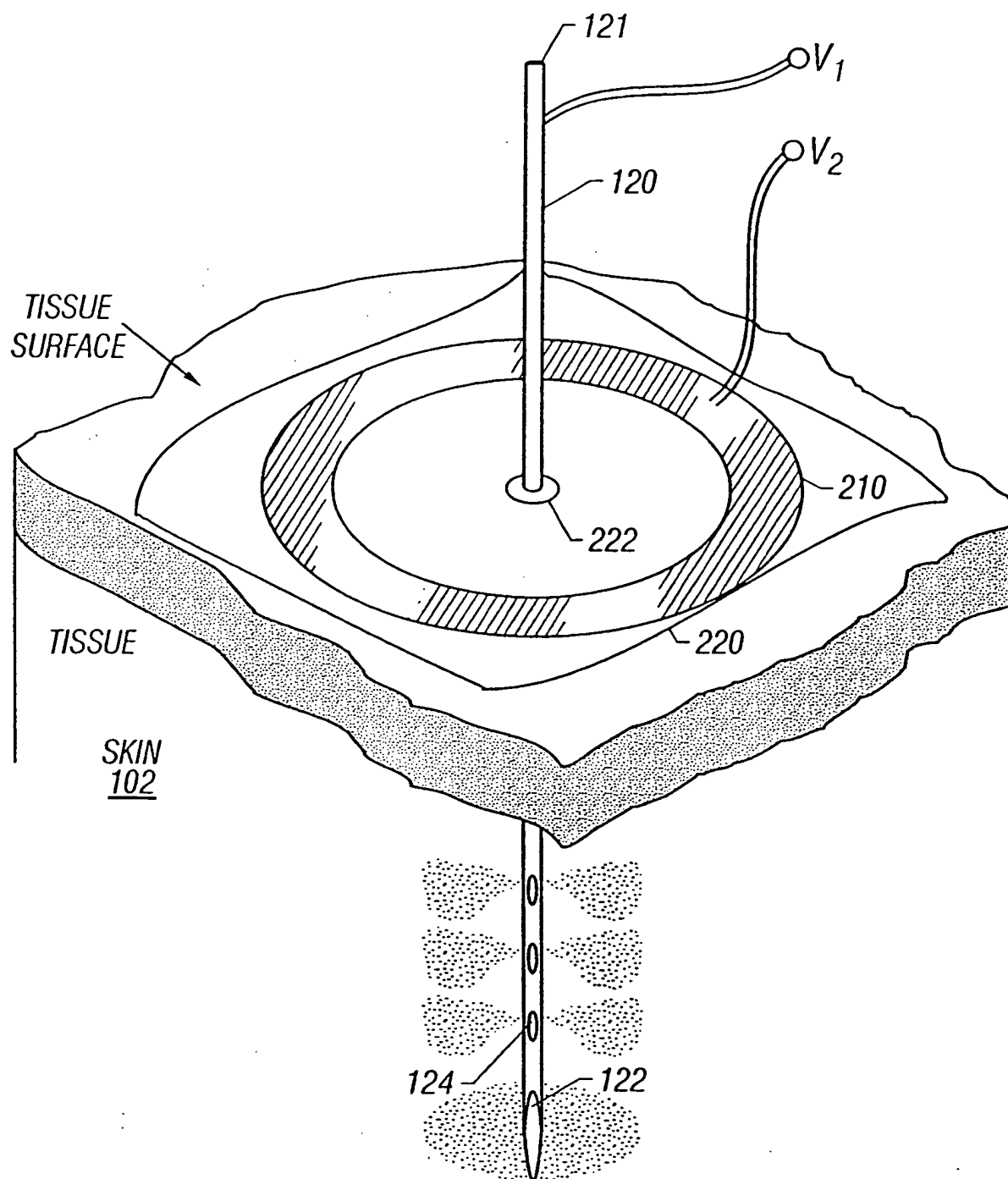


FIG. 2

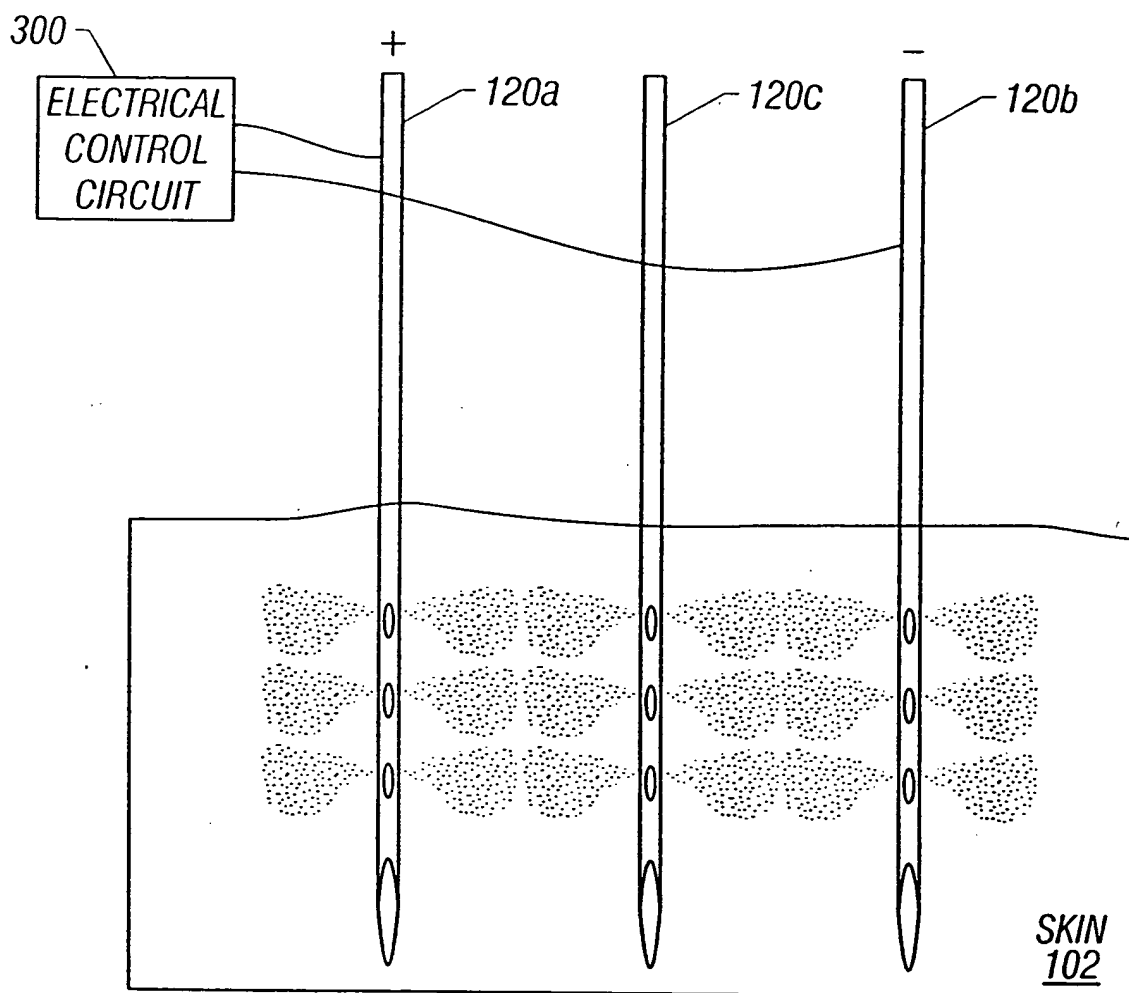


FIG. 3

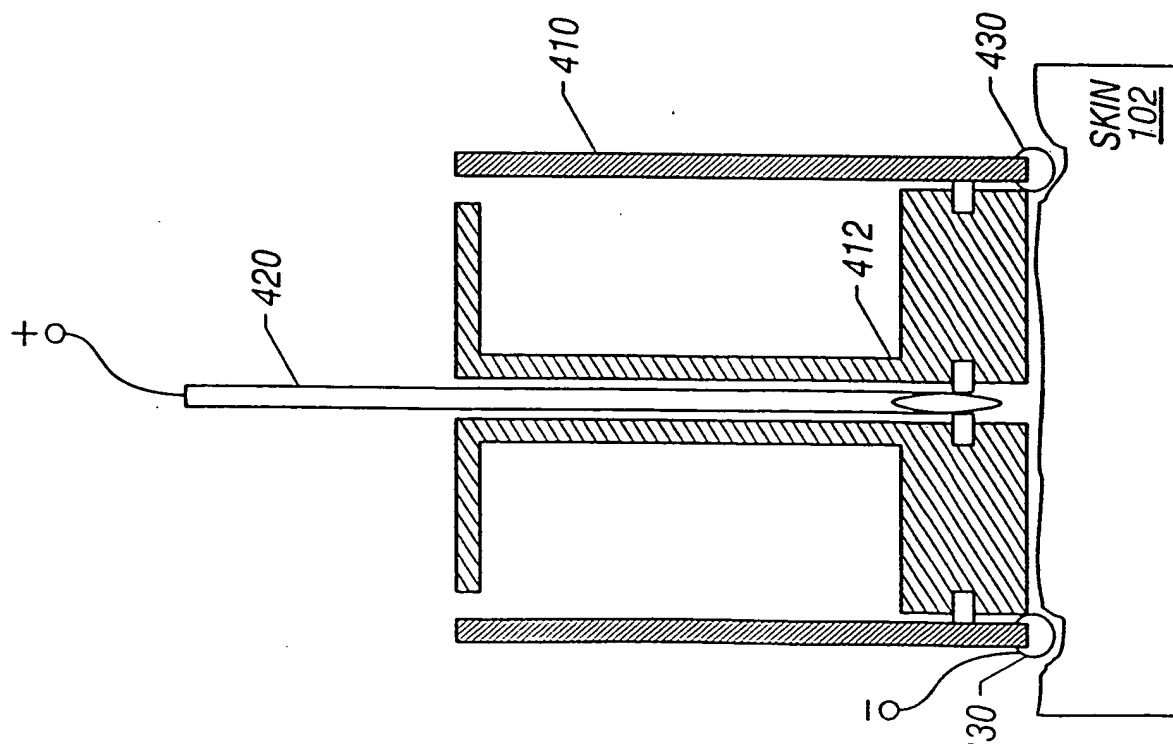


FIG. 4A

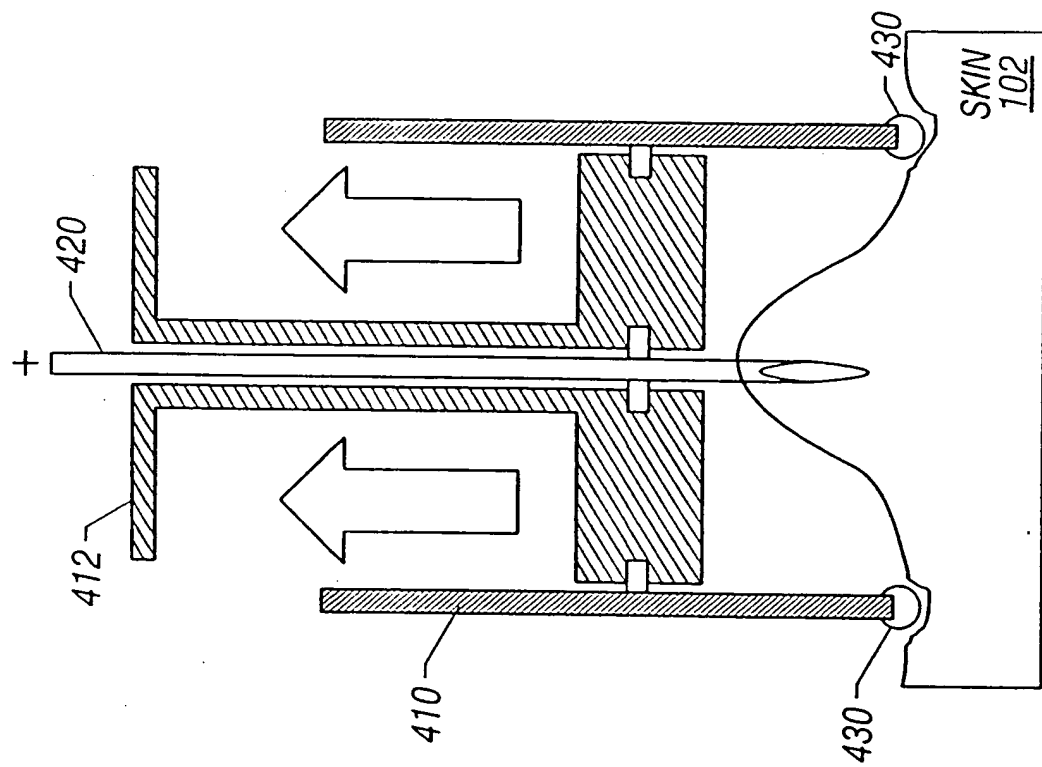


FIG. 4B

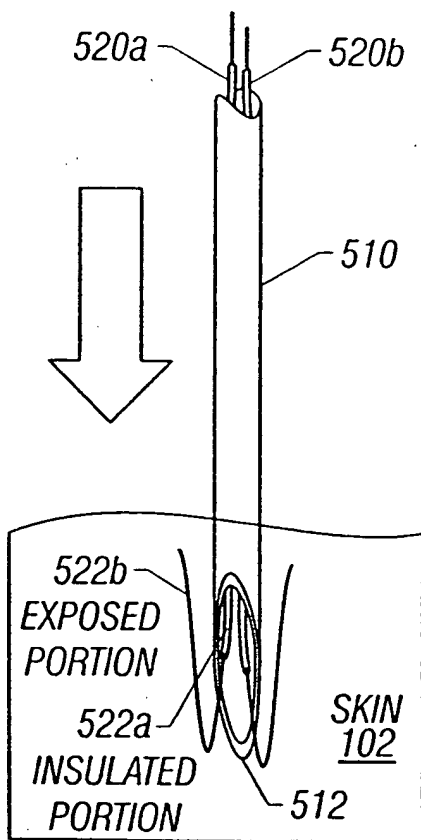


FIG. 5A

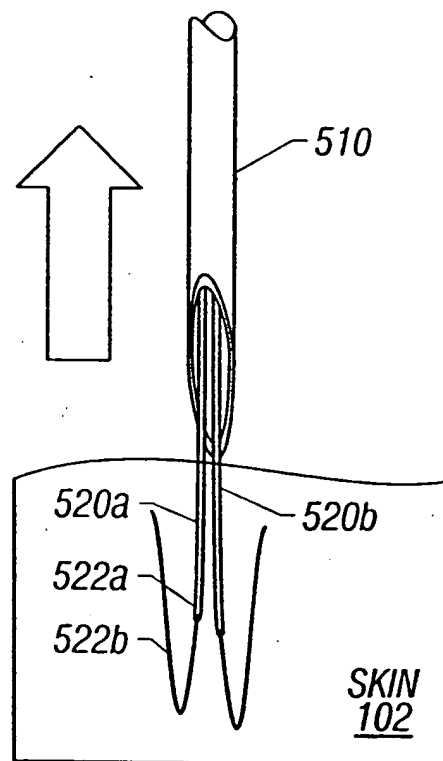


FIG. 5B

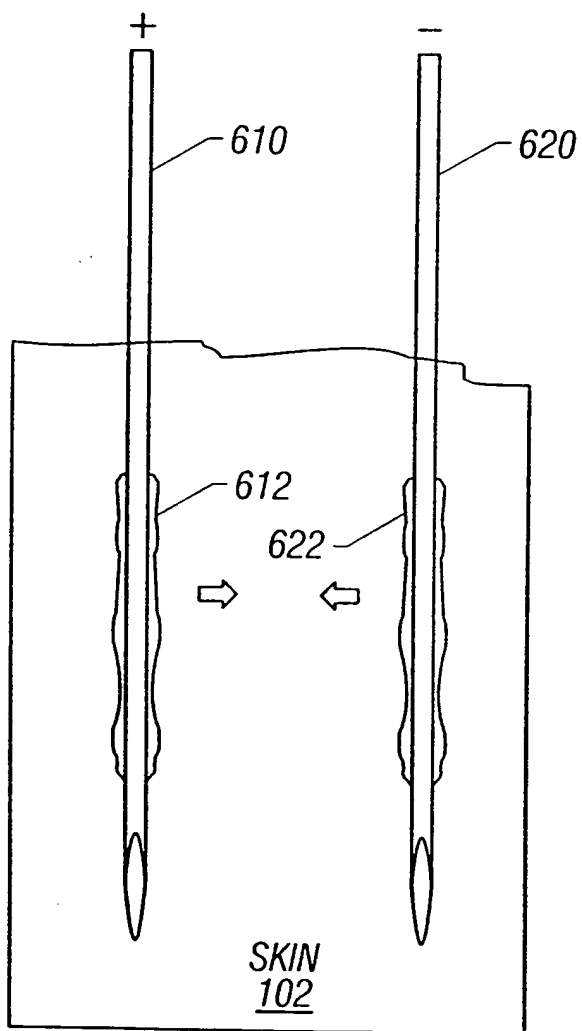


FIG. 6

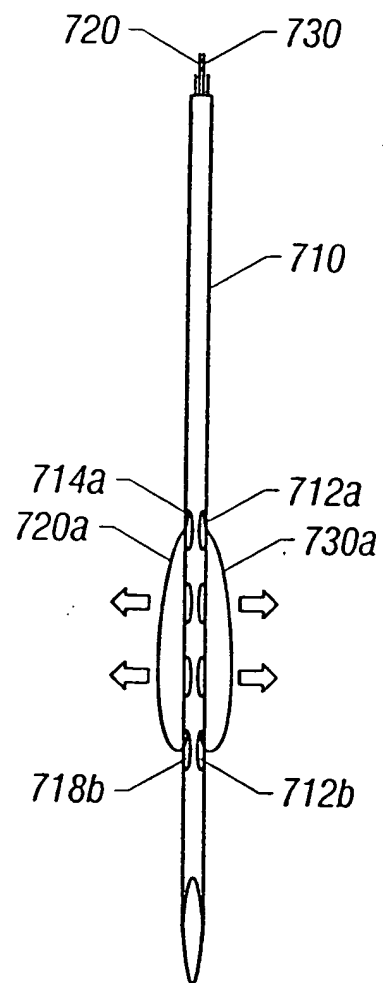


FIG. 7

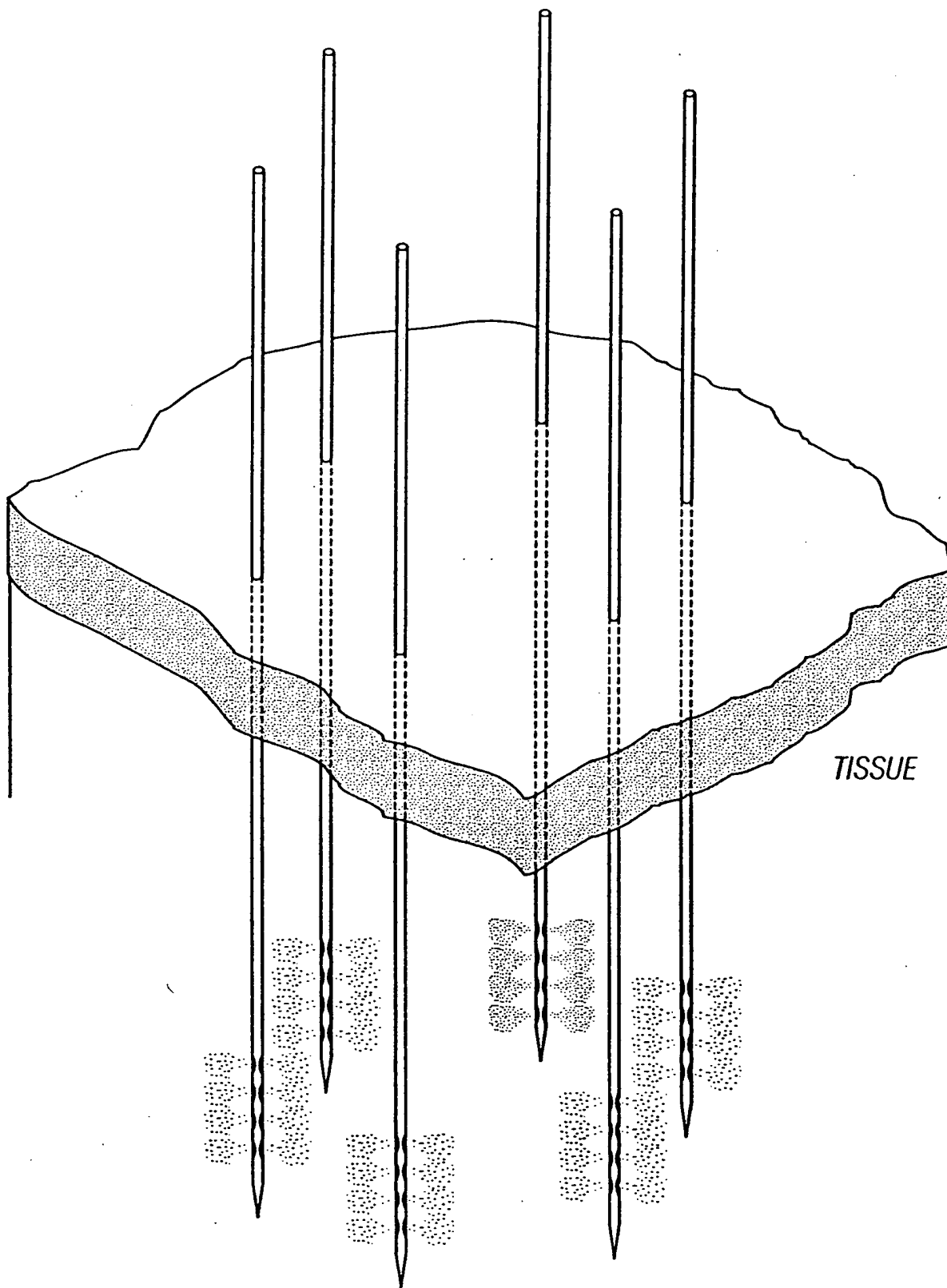


FIG. 8

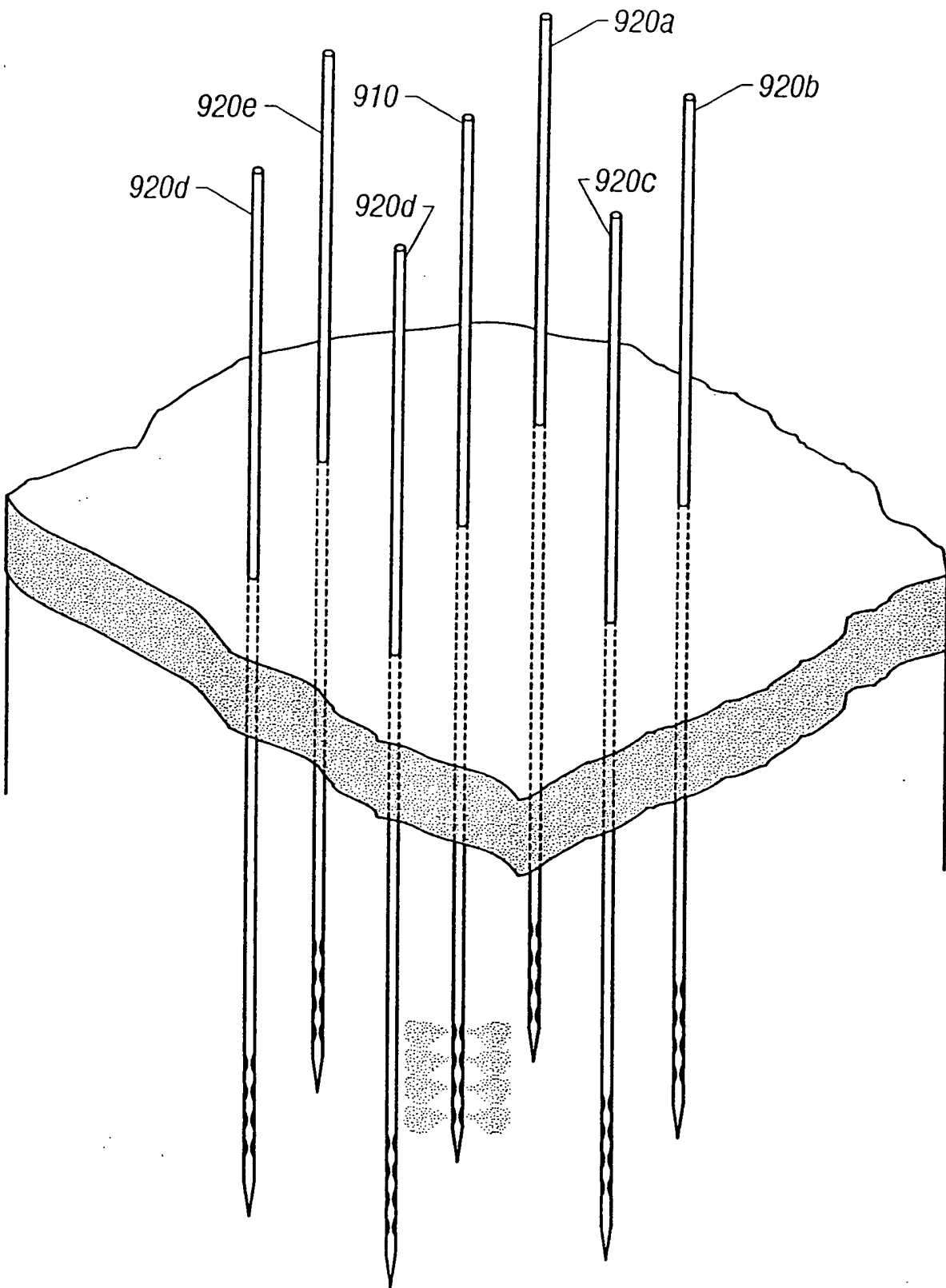


FIG. 9

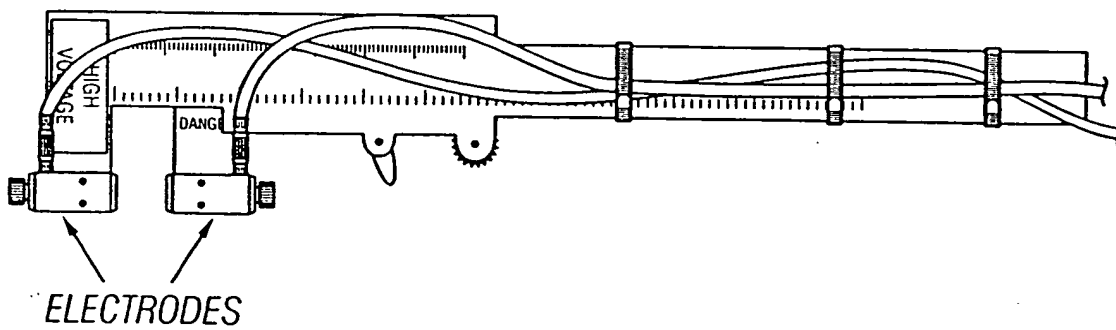


FIG. 10A

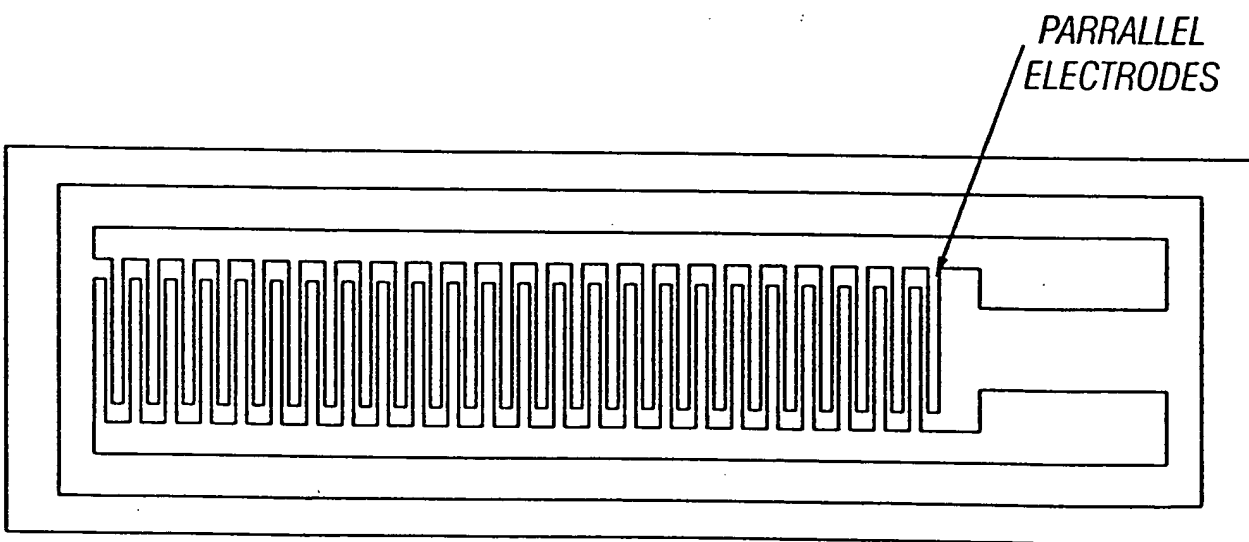


FIG. 10B

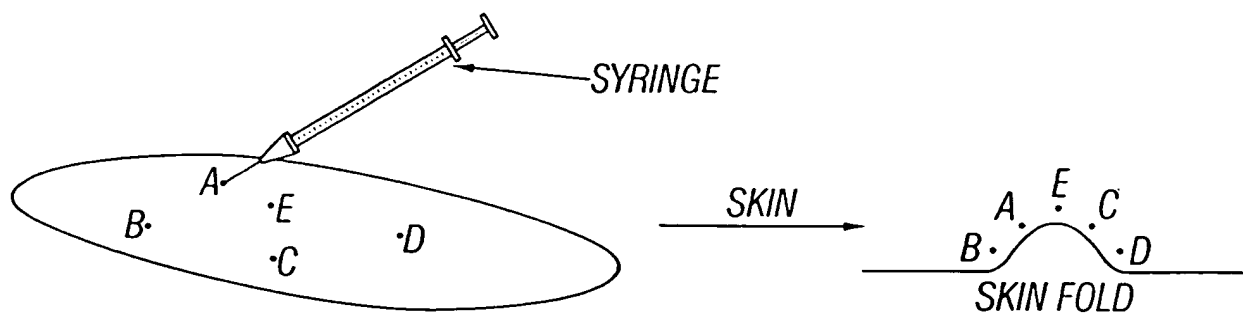


FIG. 11

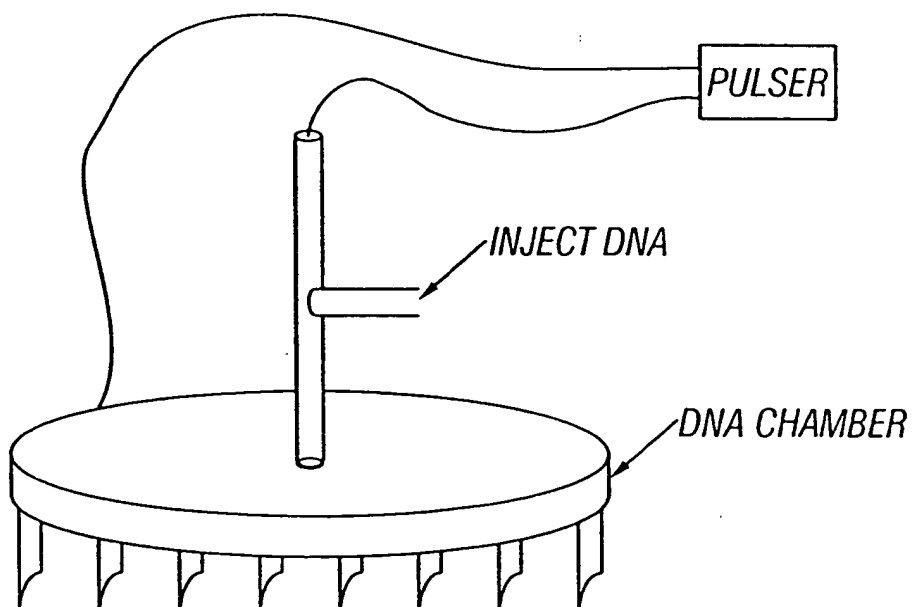
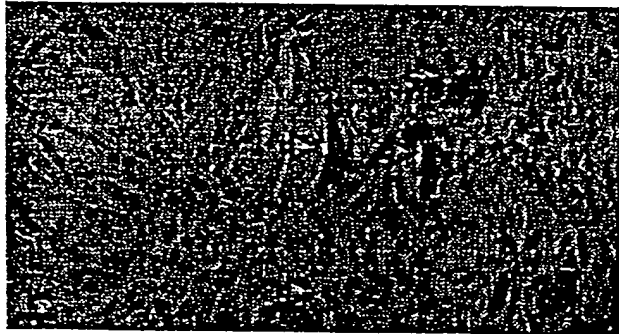


FIG. 12



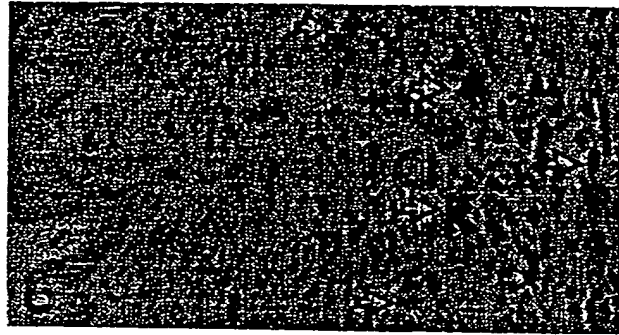
Pressure only

FIG. 13A



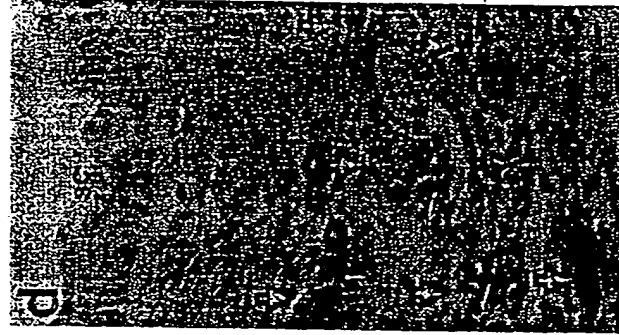
EP (10 ms) + 1 min

FIG. 13B



EP (10 ms) + 10 min

FIG. 13C



EP (20 ms) + 10 min

FIG. 13D

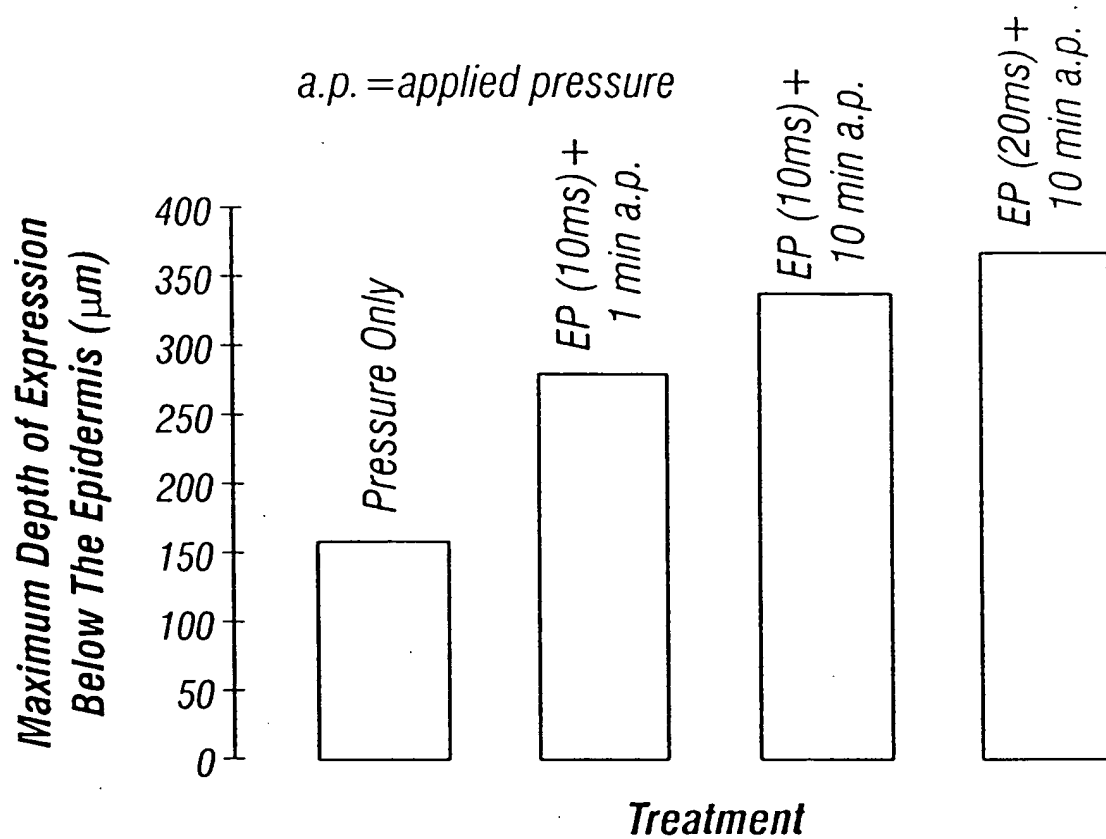


FIG. 14A

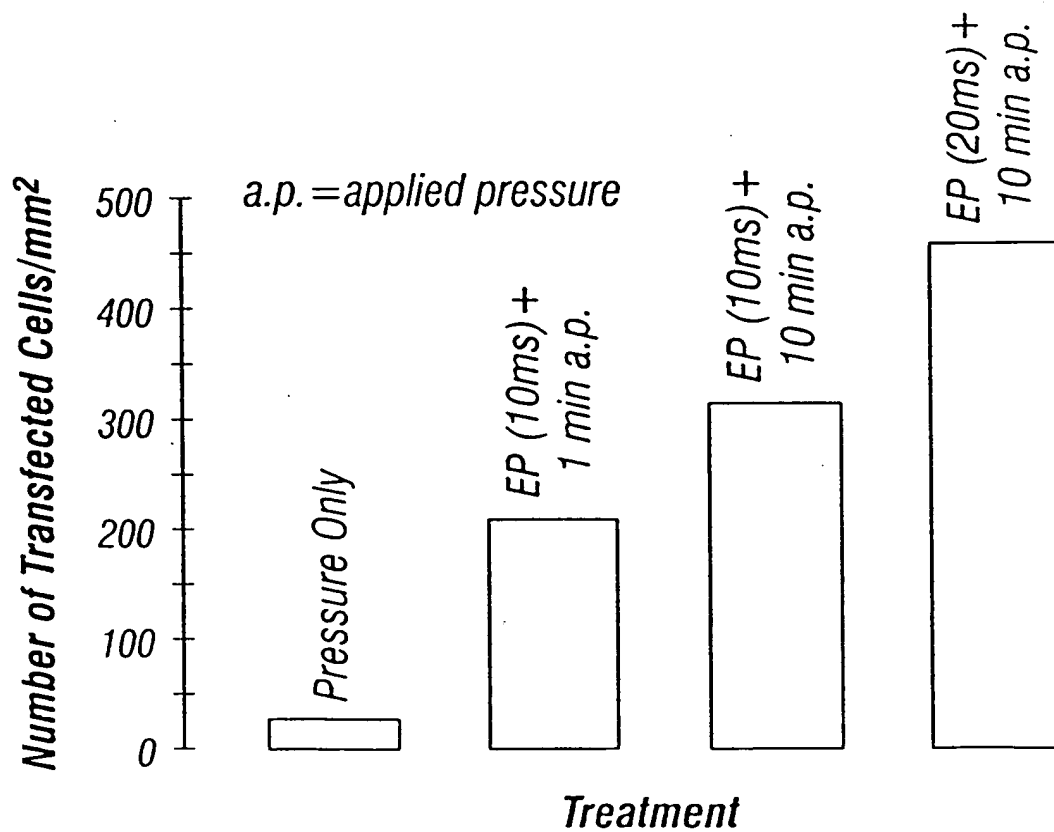
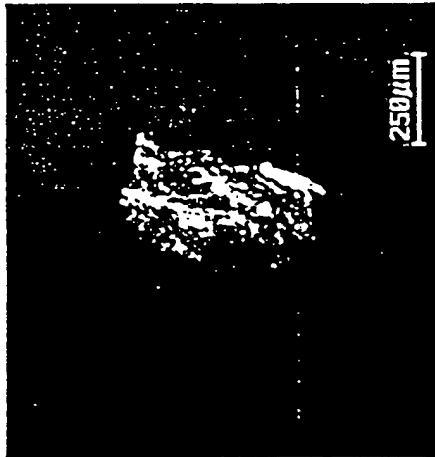


FIG. 14B

1A



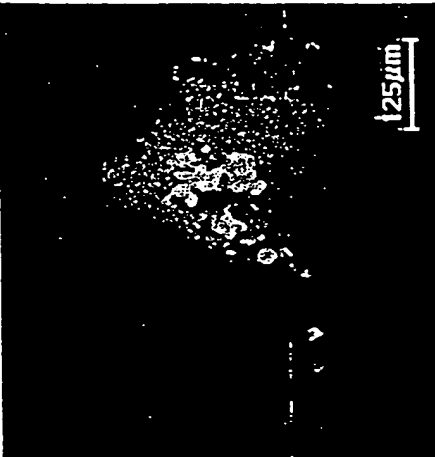
2A



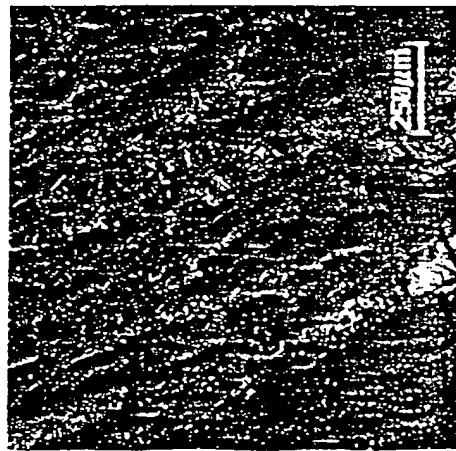
3A



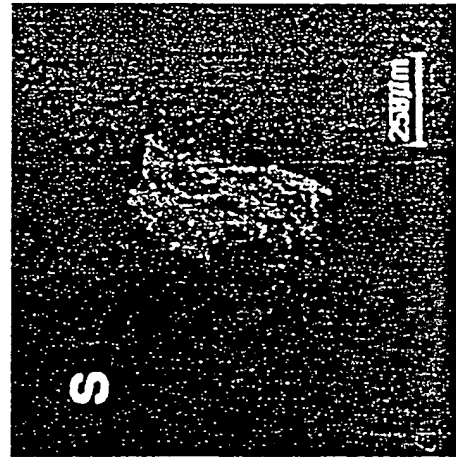
4A



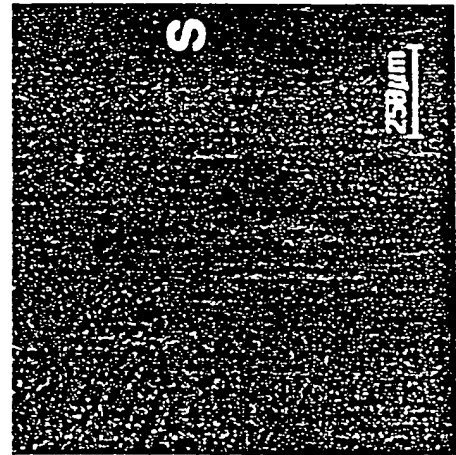
1B



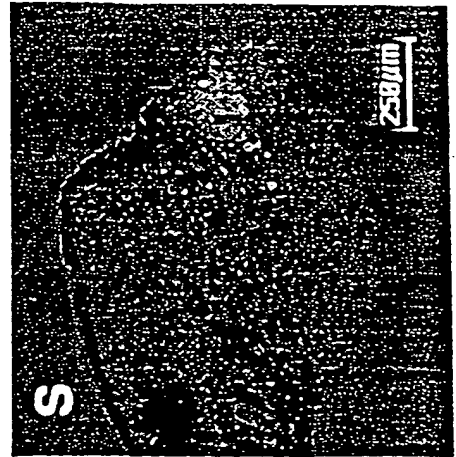
2B



3B



4B



S=surface

FIG. 15



FIG. 16A



FIG. 16B

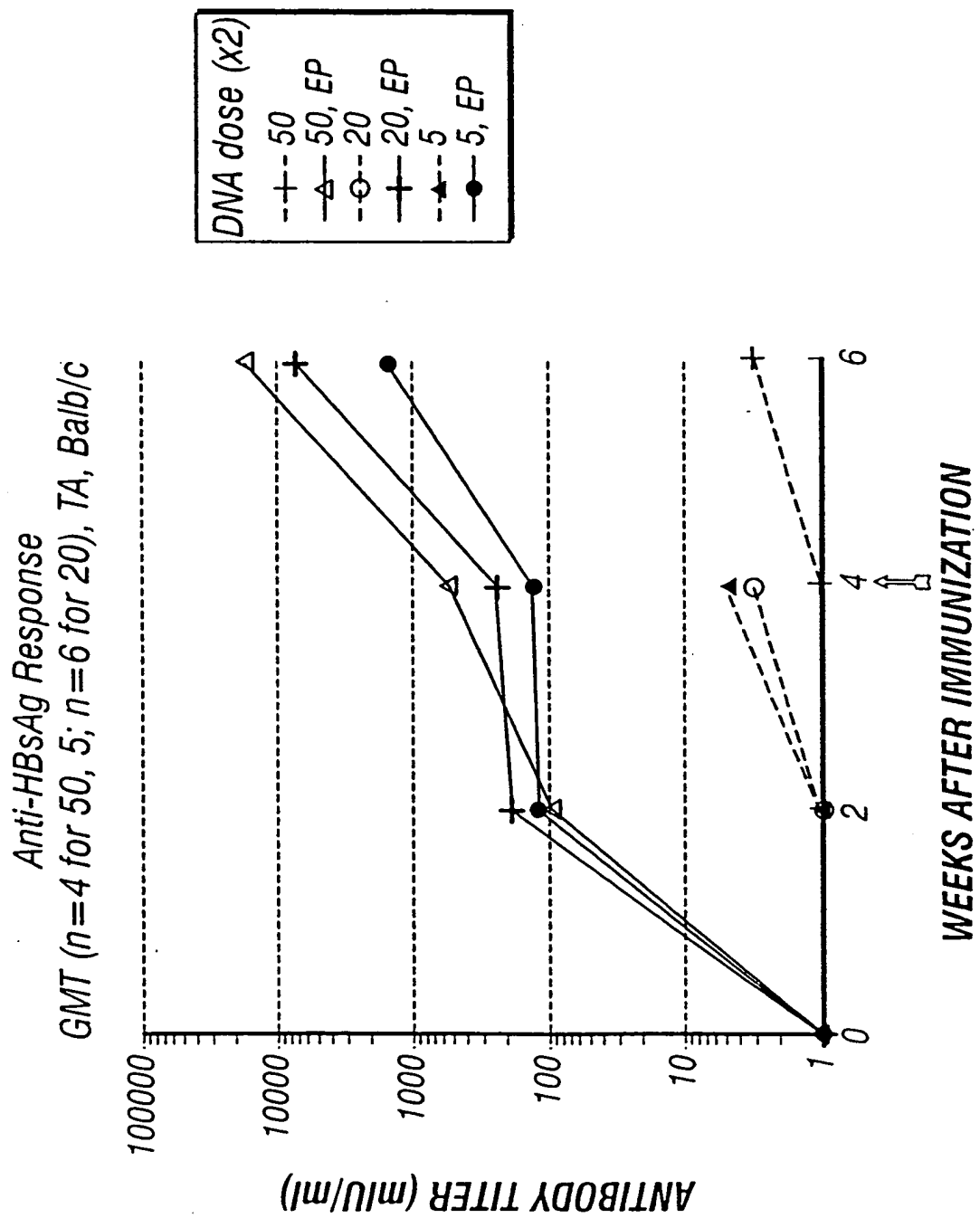


FIG. 17

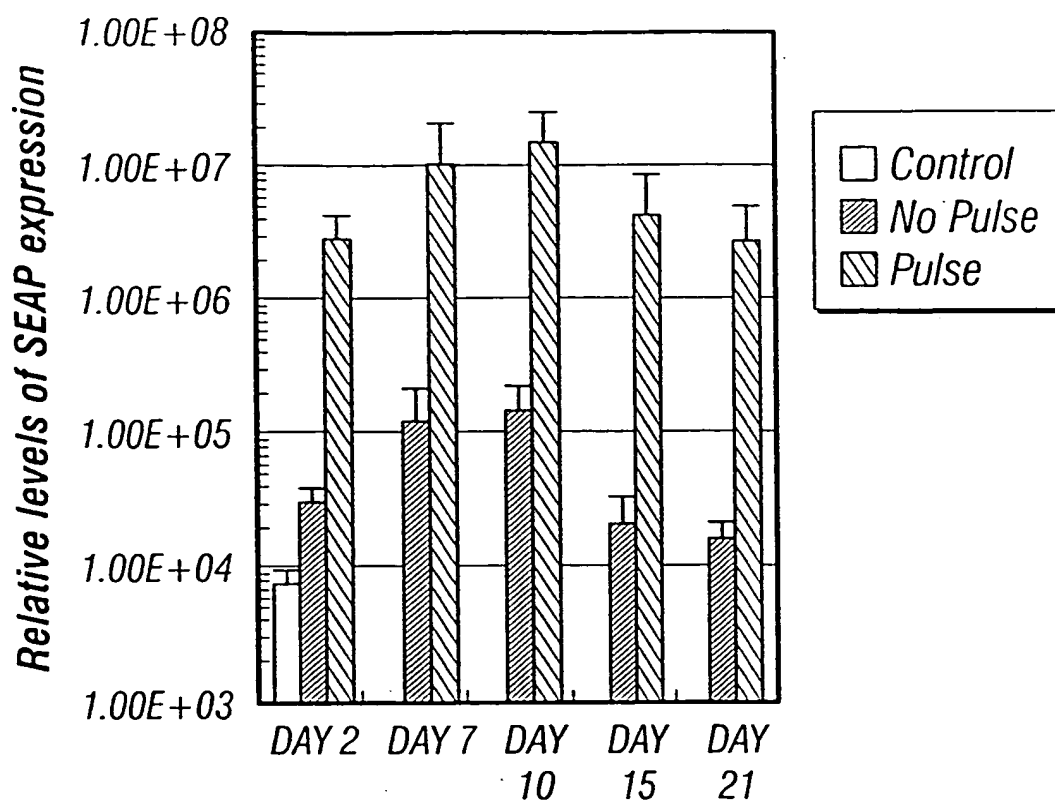


FIG. 18

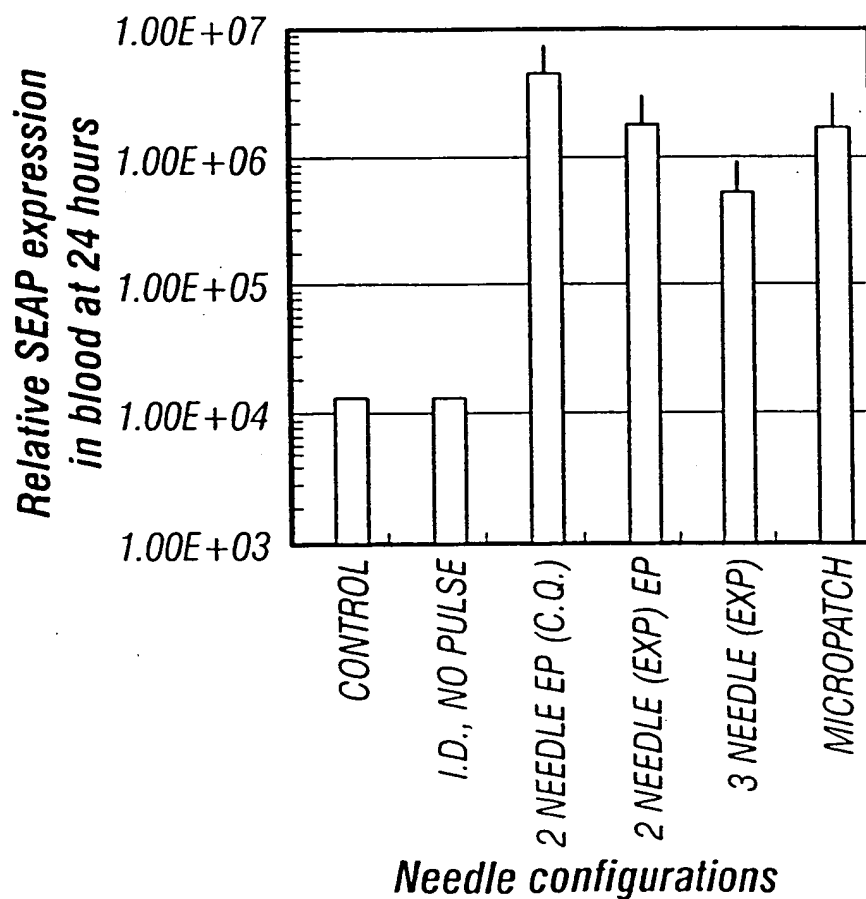


FIG. 19

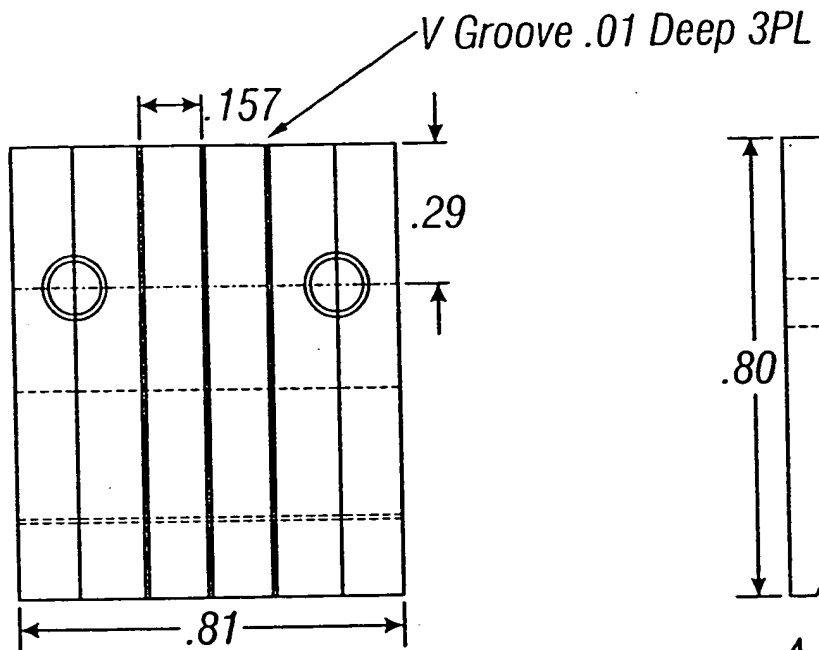


FIG. 20A

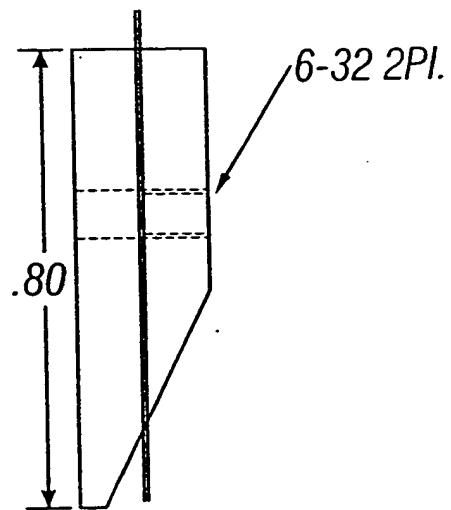


FIG. 20B

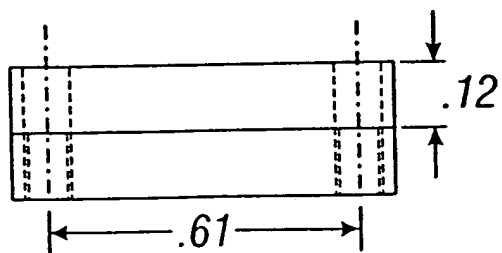
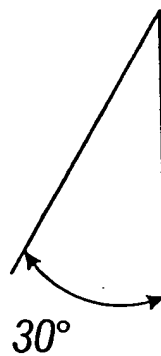


FIG. 20C

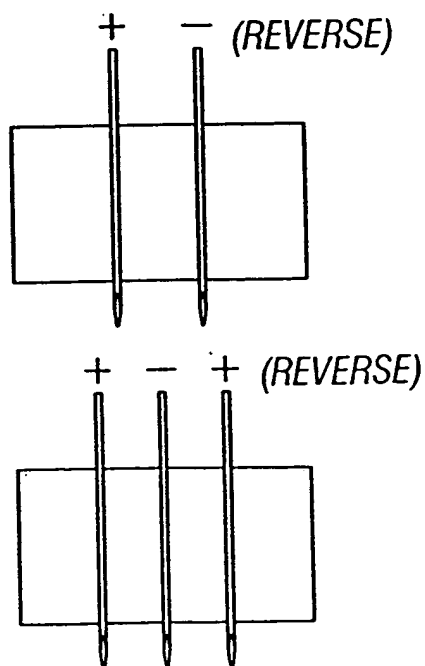


FIG. 20D

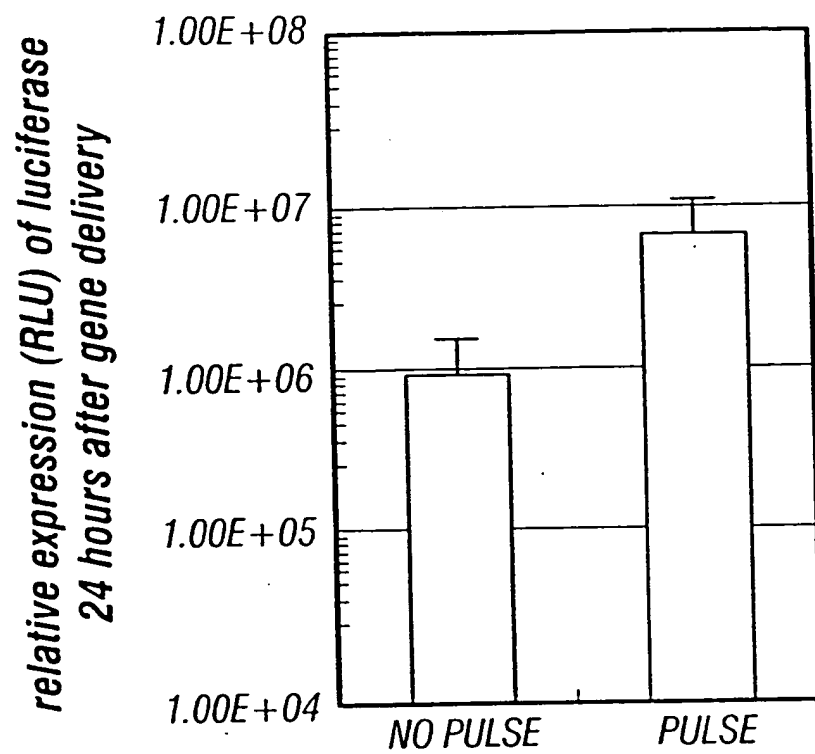


FIG. 21

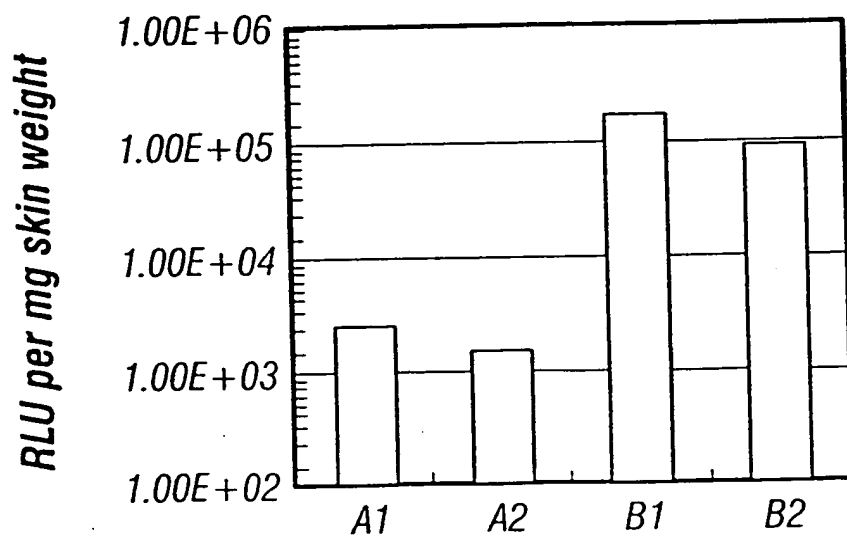


FIG. 22

FIGURE 23

Comparison of one vs. six auto-pulses with SEAP plasmid DNA (0.1 mg via 2 injection sites) in rat muscle (6-stainless steel needle array electrode, n=8)

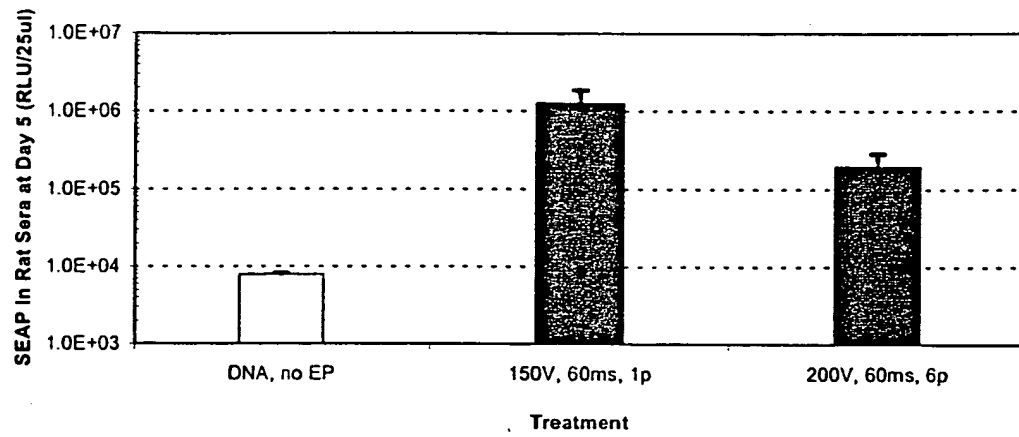


FIGURE 24

Electroporation-enhanced delivery of secreted plasmid DNA (1 mg via 4 injections)
in porcine muscle(200V, 60ms, 6-stainless steel needle array electrode, n=4)

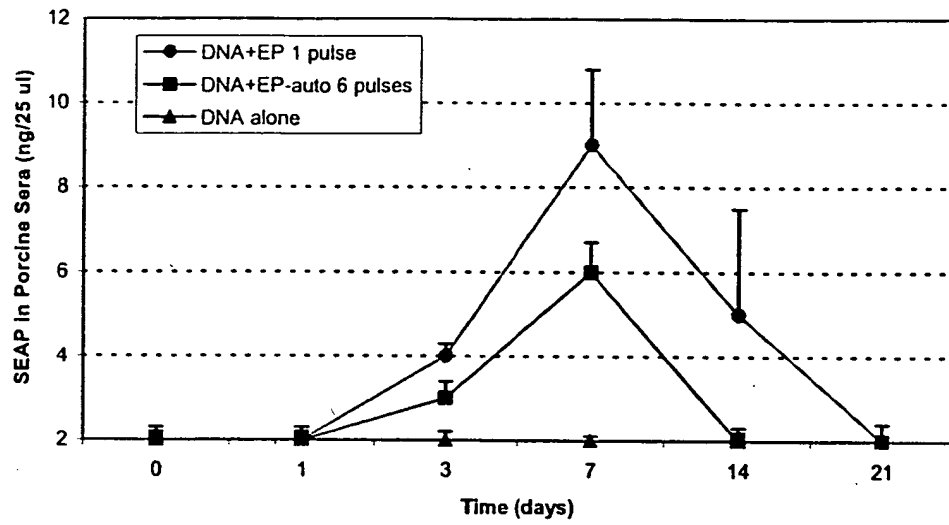


FIGURE 25

Comparison of one vs. six auto-pulses with luciferase plasmid DNA in porcine muscle (6-stainless steel needle array electrode, n=2-5)

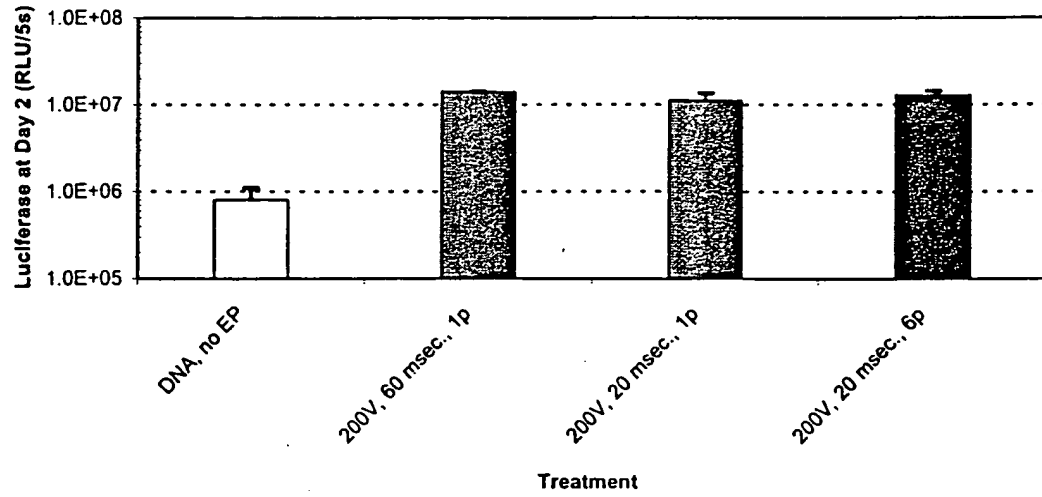


FIGURE 26

Voltage escalation in porcine muscle with luciferase plasmid DNA (4-gold needle array electrode, 60ms, 2 pulses, n=5)

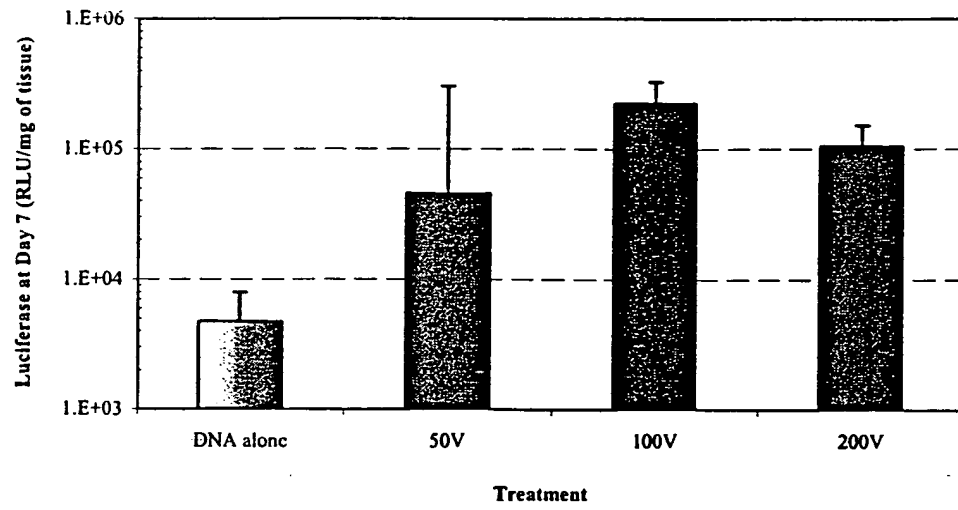


FIGURE 27

Pulse duration escalation in porcine muscle with luciferase plasmid DNA (4-gold
needle array electrode, 2 pulses, n=6)

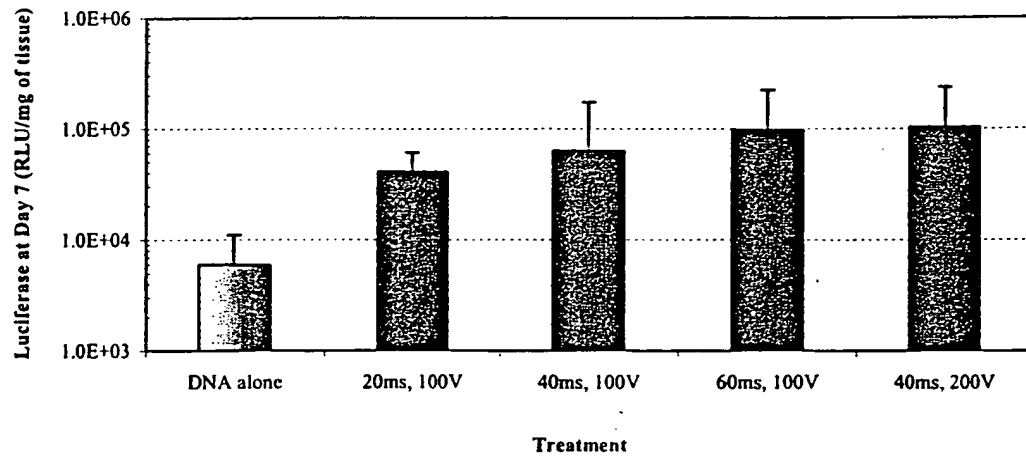


FIGURE 28

Electroporation-enhanced delivery of luciferase plasmid in porcine muscle at two time points (100V, 60ms, 2 pulses, 4-gold needle array electrode, n=6)

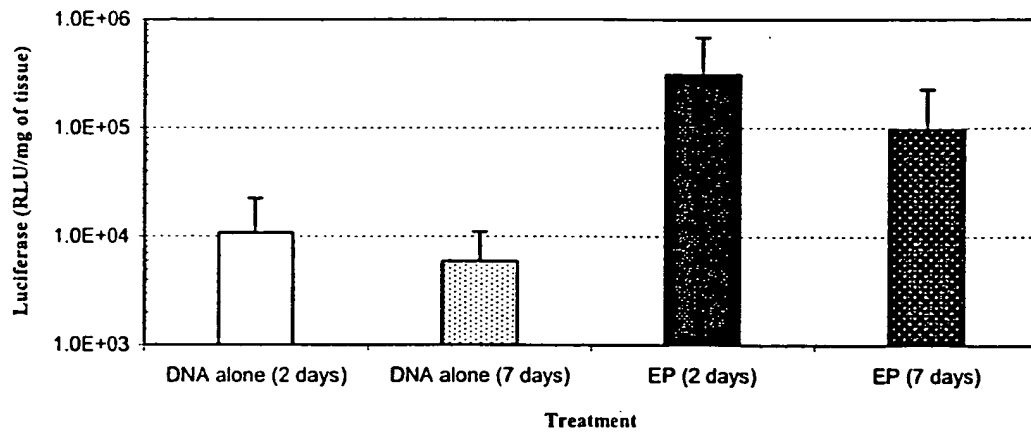


FIGURE 29

Change in porcine muscle resistance at the end of each pulse (one vs. six auto-pulses, 6-stainless steel needle array electrode, n=12)

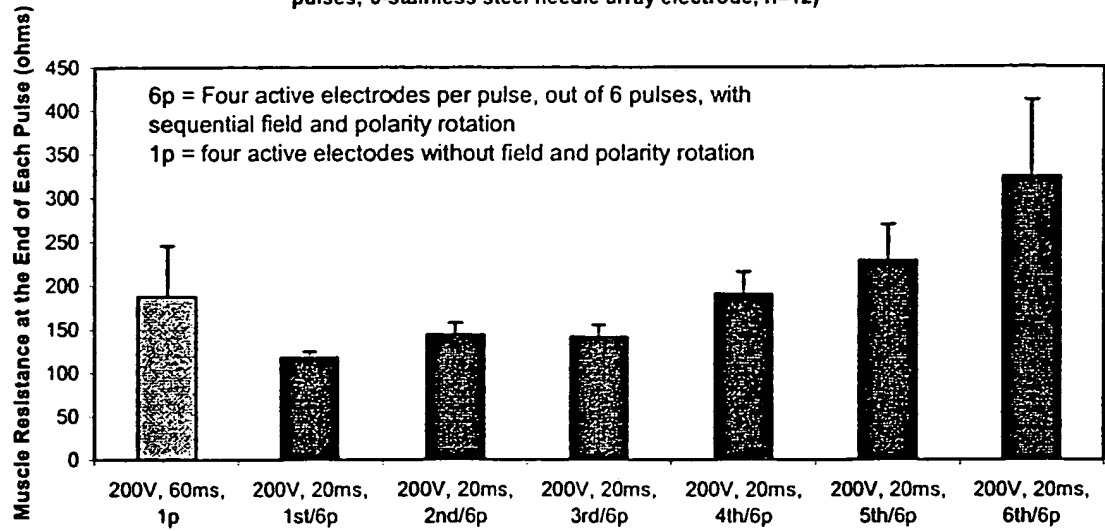


FIGURE 30

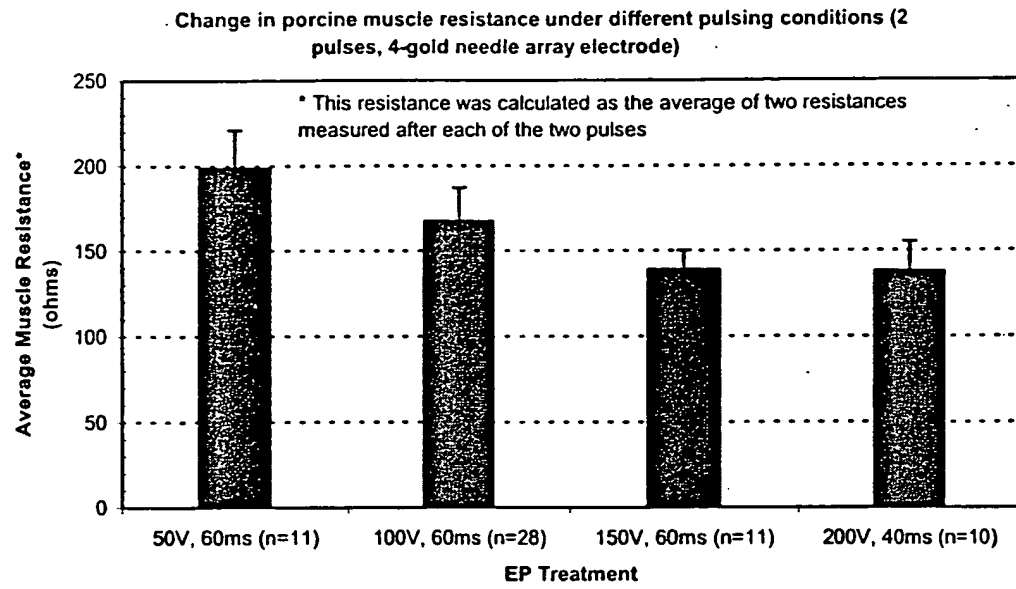
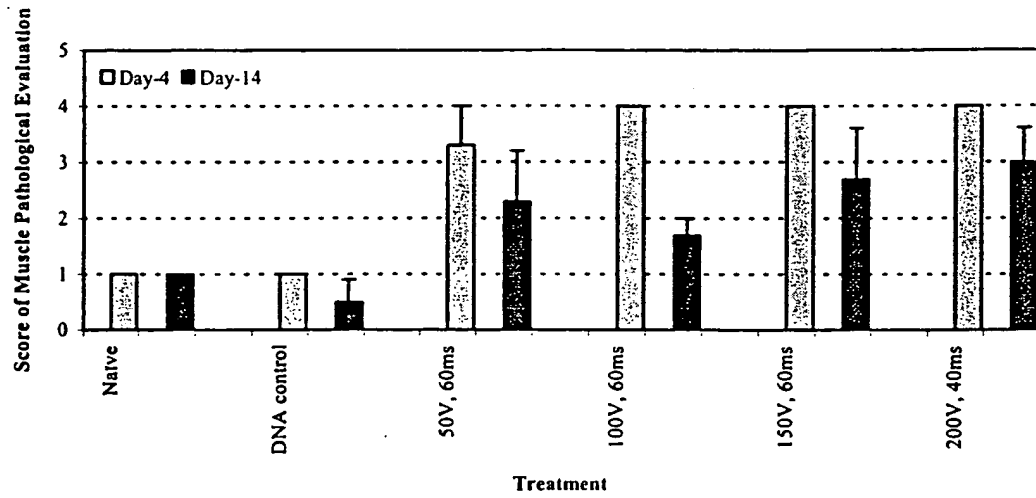


FIGURE 31

Change of inflammatory score in porcine muscle histology over time after delivery of luciferase plasmid DNA using different pulsing conditions (4-gold needle array electrode, n=9)



Effect of Pulse Conditions on Long Term Histological Changes in Porcine Muscle

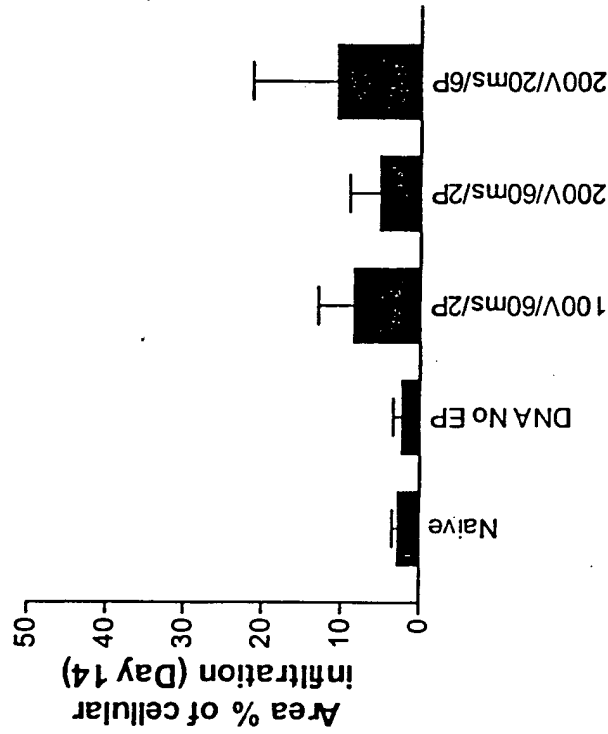


FIGURE 32A

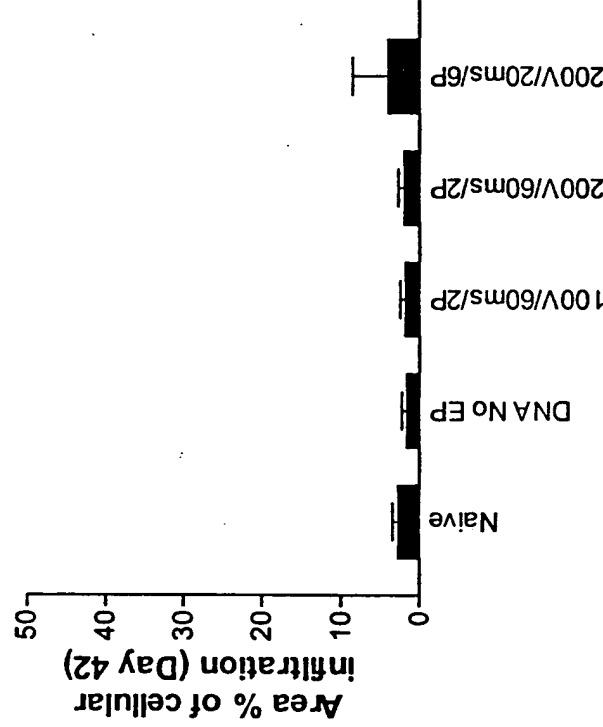


FIGURE 32B

Male or female outbred pigs, age four to six weeks; 600 ug DNA in 500 ul PBS were administered to hind limb quadriceps muscle; Electroporation was as described above; after punch biopsy, H&E stained tissue samples (n=6) were analyzed (blinded) using computer imaging software to calculate the % area of blue stained mononuclear infiltrating cells in a standard 2.5 mm² square (S.Babiuk, L.Babiuk, VIDO, Saskatoon, SK, Ca; G.W., D.P.R.)